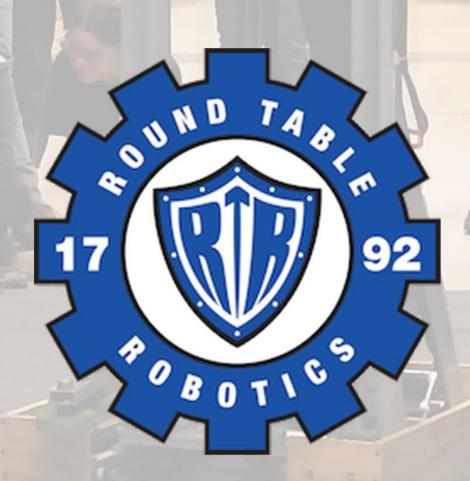
Round Table Robotics

FIRST® Robotics Competition Team 1792, Oak Creek High School Business Plan



2018

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Team Overview

Mission Statement

Round Table Robotics(RTR), Team 1792, seeks to sustain a well-rounded, goal setting team that fosters science, technology, and business leaders who will make their communities, and the world, a better place.

Vision Statement

Provide students with the tools to become the best they can be, and to challenge them to gain real-life problem-solving and critical thinking skills while in high school. Round Table Robotics ultimate goal is to guide students to reach their full potential and help them become the future leaders of tomorrow.



Core Values

These six statements makeup Round Table Robotics Core values that we recite at the beginning of every meeting. During the meeting, we respectfully share strategies and work together as a team to determine the best action to take. We collaborate, ensuring each member's idea is considered. This is why we are called Round Table Robotics-each member has an equal say in what we do and who we are, and our core values outline this. Furthermore, all students part of RTR take these core values to heart and live by them every day. Always remembering what teamwork and respect mean and always applying them to how we interact with others.

Program and Team Summary

Our Team's Beginning

Round Table Robotics started in 2016. This will be our third year competing in FRC. We were initially a split-off team from Team 1714 MORE Robotics. We took the challenges of our main mentor's retirement and subsequent loss of working space and equipment and turned them into the opportunity to grow and develop a new team. We spread the reach of FIRST by starting our team in Oak Creek and allowing MORE Robotics to expand into Milwaukee. Both teams are very successful, expanding the reach of *FIRST* in our areas.



Team Summary

From these early beginnings, Round Table Robotics has demonstrated sustainable growth. We took the skills learned while a part of MORE, utilizing them to build not only a new FRC team but a school-wide STEM Club. At our start in 2016 RTR had 24 students and 17 mentors. We have grown to more than 38 students and 19 mentors.



Basic Team Facts

Starting Year	2016	
Home Shop	Oak Creek High School wood and metal shops	
School affiliation	Oak Creek High School	
Team makeup	38 members (10 more than 2017) -12 girls and 26 boys -9 seniors, 4 juniors, 11 sophomores, 14 freshmen	
Mentors	Mr. Alvarez, Mrs. Marshall, Mr. Krist as advisors and 19 FRC mentors.	
Sponsors	PPG, Oak Creek-Franklin School District, Nucor, Master Lock, AIM, Yaskawa, Georgie Porgie's, Hanna Trailer Supply, American Legion Post 434, Oak Creek Lions Club, ZüND, Imperial Tools & Plastic Corp., Rockwell Automation, Empower Retirement, JM Brennan Inc., Rotary, Great-West Financial, Ladish, Rexnord, Boston Store, Eaton and-Air Logic.	
Website	roundtablerobotics.com	
Facebook	Round Table Robotics	
Twitter	@FRC1792	
Instagram	Round Table Robotics	

The Benefits of Round Table Robotics

For Students: For Mentors: For Sponsors: For Community: Learn skills in the fields Share knowledge and Marketing exposure in Obtain a strong of STEM, marketing, experience with eager concentration of young the community. media, arts, and young learners. Share knowledge and leaders. experience with eager Produce graduates communications. Create practical learning ready to fill STEM jobs. Learn team building experiences for team. young learners. skills. Help your local Foster pool of potential Foster creative • Work in a business community. employees. students with critical environment with Form strong bonds with thinking skills. project deadlines. students. • Work with experienced mentors who teach and guide us to success. Help the community. Make amazing new friends and great memories.

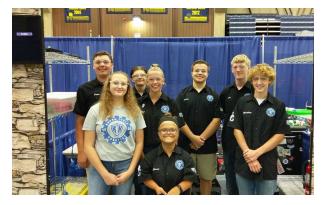
Team Organization

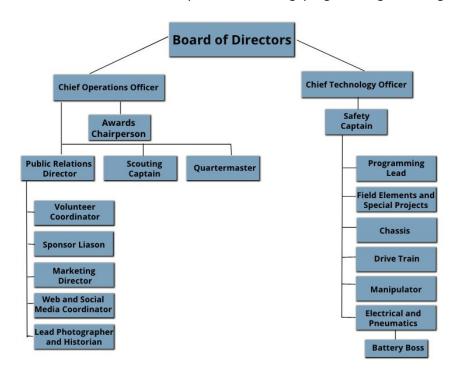
STEM Club

Round Table Robotics is not its own entity, but under the umbrella of the STEM club at Oak Creek High School. STEM club offers multiple activities all year, tapping into many students' interests. STEM club gives us the opportunity to explore many different STEM resources including *FIRST*® Robotics Competition, *FIRST*® LEGO® League and VEX. We can delve into projects such as FarmBot - an open source robot that will autonomously manage a garden. Marketing and fundraising projects such as calling sponsors, participating in robot demonstrations and community service provide additional student opportunities. Students can participate in any or all of the projects they wish; making the most out of their involvement. *FIRST*® Robotics Competition participation is based on mentor evaluation and availability to participate.

Round Table Robotics Structure

Round Table Robotics (RTR), the FRC aspect of the STEM club, is structured into two main organizations - operations and manufacturing; each lead by a captain. The captains possess overall project knowledge, multiple skills and strong leadership qualities. They work together to ensure neither organization is neglected and that both are working on the same team goals. Operations focus on public relations, sponsorship and training members on communication, and marketing skills. Operations keep RTR organized and running smoothly as a business. Manufacturing is the core of building the robot, programming and field elements. Manufacturing is responsible for the robot, itself, and training new members in technical skills in woodshop, metals, welding, programming and design.





Under each team captain are component design teams (CDT's); also led by a captain. CDT's concentrate on more specific jobs such as manipulator or volunteering. CDT captains have displayed leadership qualities and skill knowledge of that component. CDT captains have co-captains that are trained to replace them when they graduate. This provides sustainability in leadership. General team members can join any CDT they desire. In fact, most team members participate in multiple CDT's on both sides of the structure. This structure works well to support and organize our team.

Recruitment

As a third-year team, our goal is to continue the legacy of Round Table Robotics for many years to come. We make sure to put sufficient time and effort into our recruitment process. By participating in the Oak Creek High School (OCHS) freshman open house, we can reach out to incoming freshman students and encourage them to pursue STEM. Using the OCHS daily announcements, we can recruit additional students once the school year begins. We highly encourage all students from our school district to join our team, no matter what grade they are in. Our members also tell fellow students from classes and other activities about RTR, earning interest and eventual involvement. This has



been one of our most successful forms of recruitment. Also, *FIRST*® LEGO® League mentorship sets an example for younger students, increasing interest in RTR at a young age. As a team, we have hosted a *FIRST*® LEGO® League competition in our community, at which we demonstrate our FRC® robot to gain interested in high school level robotics. Lastly, we have an online presence on our website, Facebook, Twitter and Instagram where students, sponsors, and community members can find additional STEM club information.

Training and Member Safety

Safety is highly important to our team. There are full procedures and regulations for our metal, electrical and woodshops. We are always paired up with experienced mentors in our shops who ensure we appropriately use the machines. Each week we conduct safety briefings on topics ranging from lifting safely to internet use. Lastly, we partnered with the Oak Creek Fire Department to teach each of our members on the use of trauma kits.

In order to track student safety in training on specific machines, our club issues each team member a carabiner. Once a student is qualified to use a piece of equipment they earn a flag. The flag colors are a quick way for mentors to know "who can do what" and who we can share a "teachable moment" with. It is one of the cornerstones of our safety program as well as a source of accomplishment and pride for our students.



To teach students machine use in a productive way, and have them earn flags, we complete monthly projects. Over the summer, students in STEM club built a fully functional wooden desk lamp. This project is used as a teaching moment on woodshop machines and some simple electrical work. We also built an aluminum box in the metal shop teaching us how to cut the aluminum to certain specifications and learning how to fold and rivet the aluminum into a box shape.



Monthly in the off-season, we dedicate a meeting to a specific material. The "material of the month" allows us to work with a new material and learn its properties. We've worked with materials such as fiberglass and PVC, and things as simple as nuts and bolts. We gain a broad understanding of a large range of materials that we can integrate into our build season.

Outreach

Team Impact

Round Table Robotics, Team 1792, logged 2081 impact hours this year. Our students were integrally involved in planning and implementing the Oak Creek *FIRST*® LEGO® League event. Many of our students mentored other FLL® and FRC® teams; including starting a Boys and Girls Club FLL® team in Kenosha, WI. We spread *FIRST* to the community by attending local events and off-season competitions as well as partaking in community service projects. We spent numerous hours fundraising and establishing and maintaining relationships with our sponsors.

Community Outreach

Round Table Robotics (RTR) is proud to serve our community. We believe serving our community provides opportunities to help others while spreading the word of *FIRST*.

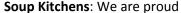


Hunger Task Force: Round Table Robotics has been annually boxing food for low-income seniors at the Hunger Task Force for two years now. We box over 40 pallets, the equivalent of 52,000 pounds of food in one day! This reaches 1,880 people who need these supplies desperately.

FarmBot: Farmbot is an open

source project Round Table Robotics is spearheading at the local Hunger Task Force farm. This farm grows fresh produce that can be distributed to families in need. Our FarmBot is not only going to grow food for the needy this season but it will also showcase the use of STEM applications to more businesses and organizations.







to work at various local soup kitchens where we served food to low income and homeless people. These soup kitchens include places such as the Gathering in Milwaukee and St. Ben's. Here we met many people in the community who just needed a friendly face and someone to talk to. We had a lot of fun too. We clocked over 201 hours at local soup kitchens.

Goldieblox: The women on our team

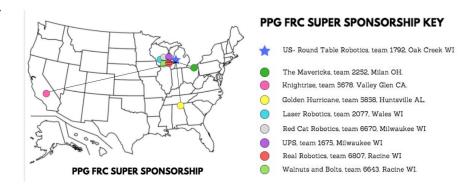
paired with the Girl Scouts of Wisconsin to host and run a Goldieblox challenge. Girl Scouts ages 6-9 learned about friction and forces; using that knowledge to create and race model cars. At the end of the clinic, the women of RTR showed the scouts our robot and let them tour our shops. We hope this clinic showed these future engineers the wonder of STEM and sparked interest to last a lifetime.



FIRST Outreach

Round Table Robotics values all that the FIRST community employs, the overarching morals of Coopertition, Gracious Professionalism and teamwork. We seek to spread these morals of FIRST by creating opportunities inside and outside our community. By doing so we hope to increase the reach of STEM with FIRST.

PPG FRC Super Sponsorship: Our proudest FIRST outreach was securing grants from our sponsor PPG to be given to FRC® teams near PPG plants across the United States. Many STEM grants are wasted each year from lack of knowledge that they exist. Round Table Robotics took it upon ourselves to find teams that were eligible for these grants, connecting these teams with the local plants and helping establish relations with these teams and their new sponsors. Currently



\$28,000 was granted to 8 teams -- with more to come! These grants provided financial stability to teams in need. We were able to expand the growth of *FIRST* from Ohio to California!



Oak Creek FLL® Regional: We were pleased to host our second annual FIRST® LEGO® League regional competition in Oak Creek, WI. We recruited over 165 volunteers to organize, setup, take down, judge and feed 36 teams that participated in the event. The event ran smoothly and many of our judges complimented our ability to host a large event. In total we gained 500 impact hours.

FIRST® LEGO® League Mentorship: RTR members mentored 7 different FIRST® LEGO® League teams, gaining 550 impact hours. One team was a start-up team with children from the Boys & Girls Club in Kenosha, WI. The team was made possible with sponsorship from the Amazon Distribution Center. Two of our mentors and 5 members traveled over 1½ hours weekly to mentor and coach these young students. Other members mentored teams at Oak Creek middle schools. Not only did we increase the number of FIRST teams but we helped sustain others through our mentorship.





Volunteering at *FIRST*® **Events**: Twelve of our mentors volunteered at various *FIRST*® Robotics Competition and *FIRST*® LEGO® League regionals across the state. Roles included judging, emceeing, pit admin and field reset. Our members also volunteered at various *FIRST*® LEGO® League scrimmages, regionals and sectionals. We also helped run *FIRST*® LEGO® League summer camps and programming workshops. Helping other FRC teams: RTR invited 3 *FIRST*® Robotics Competition teams to our meetings to show how we run STEM club. These teams were REAL robotics (Team 6807), Redcat robos (Team 2547), and Walnuts and bolts (Team 6643). We provided advice on organization, chairman's and obtaining sponsors. These teams were able to walk through our shops and ask as many questions as they wanted. RTR built bonds with these teams that continue today.



Running Our Team

Marking Structure and Planning

Round Table Robotics takes pride in how we run a highly efficient, safe and timely meeting. Each meeting we assemble as a whole to state the Pledge of Allegiance, recite our core values and review announcements, achievements, upcoming projects and activities. Each CDT captain presents what that component design team is working on and provides updates on project developments. To plan Round Table activities we discuss ideas as a team and together narrow down the options. This ensures all ideas are heard and considered. We strive to live up to our name, a group of knights that valued leadership and equality in all things.

Team Communication

Communication is key in any business and Round Table Robotics is no exception. To keep all members and mentors informed RTR uses an app called Slack. Slack allows us to build different channels for open team communication, for specific CDT's, for mentors and for events. Each channel provides the ability to send targeted information to members. Slack keeps us running our team productively and efficiently.



Our website displays our calendar, keeping our members up-to-date on upcoming events. The website allows future members to discover information about the team and how to join. Current team members can log impact hours and submit absences. Sponsors and community members can find out all about RTR, even donating if they feel compelled. We link to our YouTube channel where weekly build season posts provide updates to our sponsors.

Marketing Strategy

Target Audience

Round Table Robotics targets audiences comprised of school administration, local community organizations, sponsors, possible future members and mentors, and other FIRST® teams around the area. We do this to not only to increase funds and support but to also insure sustainability and a well rounded team.

Promotion Mediums

To promote our team we use many diverse strategies. From demonstrating our robot at various locations in the community to having a strong online presence, RTR strives for self sustainability.

Sponsor Demos: To acquire the funds necessary to operate our team we rely heavily on sponsors. We seek to gain what we like to call a "two way street" partnership. This means that we work together to help one another in our mission to improve the community. While they grant us funds to spread STEM in our own way we help them by showing off their business on our shirts and on our robot. And just like any business partner, we provide updates to what we are



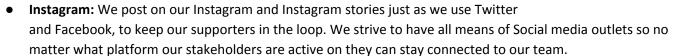
accomplishing with the funds they secure us. We update our sponsors with yearly demos at their business location. These demos not only encourage our old sponsors to continue their partnership with us but also gain new sponsors. We find that demos show businesses in person how young engineers are learning to be leaders in their communities as early as high school. Live demos also create a more personal connection with our sponsors that has led to 9 out of our 19 mentors coming from one of the businesses on the back of

Community Demos: As our impact log can attest to, we strive to make a noticeable impression on those around us. We do this by not only volunteering at local establishments, but also demoing our team to spread the word of FIRST®. We demoed at places such as the Milwaukee County Zoo, St. Francis library, Oak Creek 4th of July parade, Milwaukee Summerfest and National Night Out. Each of these events we showed off our robot and sparked STEM interest in our community that will help our team stay sustainable. We believe that community demos are just as, if not, more important than sponsor demos. Even though these demos don't turn a direct profit, they establish connections and inspire people to join or support young minds in STEM.



Online Presence: To increase the marketing of our team we have a very strong online presence. We maintain Facebook, Instagram and Twitter accounts, and a website -- all are very active! These platforms provoke interest and ensure the longevity of our team.

- Our website: This is where we log our impact hours, post news, promote our sponsors and provide information on how to join RTR or STEM club. There is also information on the Oak Creek FLL regional and other events our team runs.
- **Youtube:** We use Youtube as a means to keep sponsors, and other people following our team's progress, updated. We create weekly build videos that we post on our channel publicly so everyone can see what we are accomplishing. This shows the people who support us how their help is impacting us.
- Twitter: Round Table Robotics uses Twitter to communicate with our followers on events and other activities RTR is participating in. We also post shoutouts to other teams to network with them before we meet at a competition.
- **Facebook:** We post a lot of team updates on Facebook; however, the biggest asset we take advantage of on Facebook is the live streaming. We use this feature at competitions to show followers in real time how our robot is doing on the field.









Merchandising: Round Table Robotics works to maintain a solid brand so our business gains notoriety. One way we do this is by keeping all logos consistent -- down to our own shade of blue called RTR blue! Our marketing team works to design and manufacture giveaways that are distributed at demos and competitions. These include pins, stickers, and many other trinkets that have our trademark gear on them. This establishes tangible items that people at these events can remember us by. Our logo is also something we take pride in. "Round Table Robotics, Gearing up for Tomorrow!" is our slogan, as well as our mentality. We are the future, and the students of Round Table Robotics understand this.



Financial Plan

Sponsorship

Round Table Robotics relies on sponsorships to keep our team funded. We work to build relationships with engineering sponsors who may want to provide funding and mentoring, and are committed to STEM. Non-engineering sponsors can see the value in the training, marketing and business leadership we provide. As a team, we encourage our students to identify possible sponsors in our area, then reach out to them with the sponsorship team. We find that this generates many different ideas, and allows students to have a more personal relationship with our local business. Throughout the year, we provide robot demonstrations at sponsor businesses and invite them to meetings and competitions. This is how we connect personally with our sponsors so they know how grateful we are.

Location of Sponsors



Location: Oak Creek, WI, USA

- -Round Table Robotics
- -PPG
- -First Supply
- -Oak Creek-Franklin School District
- -Nucor
- -Master Lock
- -AIM
- -Yaskawa
- -Georgie Porgie's
- -Hanna Trailer Supply
- -American Legion Post 434
- -Oak Creek Lions Club

Location: Milwaukee, WI, USA

- -Rockwell Automation
- -Empower Retirement
- -JM Brennan inc.
- -Rotary
- -Great-West Financial
- -Ladish
- -Rexnord
- -Boston Store

Location: South Milwaukee, WI, USA

-Eaton

Location: Franklin, WI, USA

-ZüND

Location: Greendale, WI, USA
-Imperial Tools & Plastic Corp.
Location: Racine, WI, USA

-Air Logic

Fundraising

We fundraise by selling Boston Store Community Day booklets, hosting a roller skating event for elementary students and selling movie theater tickets. We also sell refreshments at various community events and host fundraising nights at local restaurants. We are constantly striving to find new ways to raise money and keep the team viable.

 Boston Store Community Day booklets: One of our mentors works for the Boston Store and helped us set up this fundraiser. We sold coupon booklets for the Boston Store not only on our accord but also in the store at Mayfair Mall.



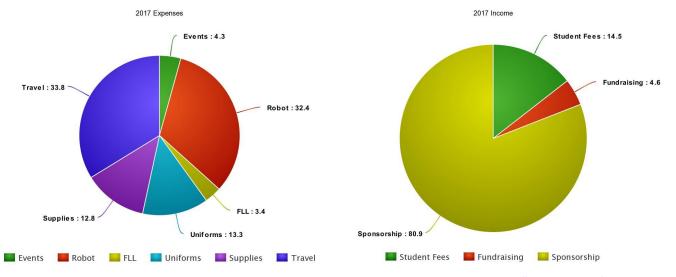
- **Rollaero:** Each year we hold a roller skating night that we host for the young people in our area. Last year over 300 people attended this event.
- Star Wars movie night: When the first new Star Wars movie came out, the force awakens, we started a fundraiser where Round Table robotics rents out an entire movie theater the opening night of a new Star Wars movie and raises money from ticket sales. So far we have hosted this event for the Force Awakens, Rogue One, The Last Jedi, and are planning for the release of SOLO.
- Georgie porgie's night: We annually host a robotics night at a local family restaurant in Oak Creek called Georgie Porgie's. Not only do 15% of the proceeds from that night go to our team, as well as a dollar for every RTR sundae we designed called "datalicious," but we also demo our robot to the local residents eating dinner.



- Selling refreshments: We sell drinks at local festivals and events in our community to raise funds for our team budget. One of the places we did this at was Oak Creeks Summer Solstice Celebration. This not only gets our students involved in a business-like scenario but also gets more people in our city knowing about us and our mission.
- Concessions: Every year we host the annual Oak Creek FLL regional, and at the regional, RTR runs a concession stand to sell lunch to all the teams that are attending.
- T-shirt sales: At the Oak Creek FLL regional we also sold T-shirts. We designed these shirts, and they said: "Trust me, I'm in FIRST® LEGO® League."



Financial Statement



Banking Summary - 2017

Income:

Category:	Specifics:	Total Amount:
Fundraising	 Boston Store Coupon Book Car Stickers Donations Norwex Sale Star Wars Movie Night Rollaero Georgie Porgies McRobot Night 	\$1,732.82
Sponsorship	See map in "Location of Sponsors" above.	\$30,272.63
Student Fees	 Student Membership Fee (\$150 per student) Student Shirts 	\$5,420

Expenses:

Category:	Specifics:	Total Amount:
Travel	GasTransportationHotelMeals	\$11,990.86
FLL	 2016 Regional 2017 Regional Practice Table 	\$1,212.09
Robot	 Miniature "training" robot kits Battery Charging Robot Parts Tools 	\$11,498.04
Events and event supplies	 4th of July Parade Banquet Buttons Candy Bot Week Zero Event Presentation Team Lunch T Shirt Cannon Pit 	\$1,521.54
Supplies	 Carabiners Field Elements Office supplies Service Charge Treasurer Supplies Website Woodshamp Lamp 	\$4,555.08
Uniforms	Student and Mentor Work ShirtsSummer Shirt Tye Dye	\$4,716.38

- Numbers: more than 38 people contributing to the team.
- Training: Material of the month and safety carabiners in place team training.
- Teamwork: Our core values and overall respect for all team members helps us work together perfectly.
- Passion: Every person on the team has a passion for the team that drives us.
- Support from Sponsors: Our sponsors help us to be the team we are today because of our strong relationship with them.

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- FIRST® LEGO® League: We have many schools around our area with no FLL teams that we could reach out to.
- Community Growth: Our city of Oak Creek is growing rapidly with new businesses that could be potential sponsors.
- Off-season events: Projects like farm bot and the STEM fair we are planning on hosting can create opportunities for STEM growth.
- Plan further ahead for deadlines: look ahead and not rush to get things like chairman's submitted.



- Projects: Sometimes we fall short on making enough projects to keep members occupied on the off-season.
- Planning orders: In the build season we have trouble planning when to order things to get them in the time we need them.
- Lacking school involvement:
 The school we operate from doesn't interact with us as much as we'd like.
- Lack of an archive for team history: We do a lot as a team, but we have a lack of pictures and documentation from these events.



- Graduating seniors: Many of our seniors who have leadership roles are leaving and they make up most of our team.
- Team growth: Though our seniors are leaving, the amount of 8th graders coming in is very high so we must fit our team to accommodate the size of that class.
- Lack of Juniors: There are only four juniors to take the place of the seniors leaving the team.
- Mentorship: Many of our mentors are parents of the seniors leaving the team, so we will be short on mentors next year.

Future Plans

Growth and Sponsorship

Round Table Robotics short-term strategy is to continue STEM Club, adding off-season events to maintain student involvement and prepare them for the *FIRST*® Robotics Competition season. This year we will complete FarmBot, an open source robot that will autonomously manage a garden. Food harvested from FarmBot will be donated to the Hunger Task Force.

RTR over the next three years will increase team membership by continuing to mentor *FIRST*® LEGO® League teams. Growth in FLL® means growth in STEM and FRC®. Our goal is to start a *FIRST*® Tech Challenge team, allowing first and second year STEM club students to compete and build skills for FRC®.

We will continue to foster relationships with our current sponsors and pursue additional ones. Oak Creek, and the surrounding region, is growing with many opportunities to reach new businesses. RTR will provide robot demonstrations, presentations and marketing materials to these potential sponsors.

FIRST and Community Outreach

To support *FIRST*®, Round Table Robotics will continue sponsorship of the Oak Creek *FIRST*® LEGO® League regional, drawing teams from around the state. RTR members continued mentoring of FLL® teams, summer programs and programming workshops will increase student interest in STEM. While this was our first year running the Girl Scout Goldieblox challenge, we hope to continue this relationship with young women; inspiring them to continue their interest in STEM and eventual membership in *FIRST*®.

RTR will increase volunteering for non-profit organizations; focusing on our partnership with Hunger Task Force and FarmBot. FarmBot showcases the use of STEM applications to more businesses and organizations. Participating in community events such as National Night Out, Fourth of July and Homecoming parades, will promote our team and reach people who might not know what STEM is. These events are fun and provide team bonding opportunities as well.

Conclusion

In closing, Round Table Robotics is not only a well rounded team, but a sustainable one as well. We strive to continue growing RTR, while maintaining the same high standard ethics and reliability.